

## **Collective Phenomena in Heliospheric Plasmas**

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In keeping with the major theme of the Autumn Collage, the three talks to be presented will emphasize collective phenomena occurring in the plasmas inside the heliosphere. Of course, the major plasma component is the solar wind which creates the heliosphere by excluding the magnetized interstellar plasma. The solar wind actually consists of several different plasmas that originate at different source locations on the sun. Specifically, a relatively structure-less high-speed plasma originates from the sun's polar regions and a highly-structured lower-speed wind originates at low latitudes. The co-existence of these two plasma "streams" inside the heliosphere leads to a variety of collective interactions involving the formation of shocks and other waves, the acceleration of particles to high energies, etc. An additional plasma component is present that originates as interstellar neutral atoms that are able to penetrate into the heliosphere where they become ionized to form a "hot" plasma co-moving with the solar wind.

The three lectures are then as follows: (1) The Magnetized Solar Wind: Global Structure and Large Scale Interactions. (2) Waves and Discontinuities in the Heliosphere. (3) Heliospheric Shocks, Waves and Particle Acceleration.

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**"Plasmas - a paradigm for collective phenomena"**